

REMARKS

This Amendment is filed in response to the Official Action dated January 18, 2005. In this Amendment, claim 15 is amended and claims 1-14 and 16-20 are unchanged. Claims 1, 8, and 16 are independent. Following entry of this amendment, claims 1-20 shall be pending.

In the Office Action, claim 15 is objected to because of an informality, and claims 1-20 have been rejected based on prior art grounds. The applicants hereby request reconsideration of these claims in view of the reasons set forth below.

I. CLAIM OBJECTION

The Examiner objected to claim 15 because of a lack of claim number from which it depends. Claim 15 has been amended to include reference to the prior claim, namely claim 14. Withdrawal of the objection is hereby requested.

II. REJECTIONS UNDER 35 U.S.C. SECTION 102

Claims 1-6, 8-12 and 15 are rejected under 35 U.S.C. Section 102(b) as being anticipated by U.S. Patent No. 3,921,912 to *Hayes*. For at least the reasons set forth below, it is submitted that these prior art rejections should be withdrawn and the pending claims allowed.

Turning first to claim 1, an irrigation sprinkler is presented for uniformly watering a target area. As described in the specification, the nozzle design as recited in claim 1 influences water flow by manipulating attributes of the boundary layer of the sprinkler water stream, such as boundary layer size and speed, yet has little or no effect on the non-boundary layer portions of the water stream. Specifically, claim 1 includes a sprinkler nozzle comprising a substantially hollow, cylindrically shaped body having a first end, a second end and a flow passageway extending therebetween surrounded by an internal wall and a plurality of stepped, radial offsets formed along said internal wall such that an internal diameter of said nozzle decreases from said first end to said second end

of said nozzle. In this respect, the invention as recited in claim 1 can uniformly distribute water with a sprinkler water stream.

The Examiner asserts that *Hayes* discloses a sprinkler comprising a sprinkler body (13) and a nozzle (34) disposed on the sprinkler body where the nozzle has a substantially hollow shape with a first end (35) and a second end (24) and a flow passage extending therebetween. The examiner further asserts that the nozzle includes a plurality of stepped, radial offsets formed along the internal wall (32) such that an internal diameter of the nozzle decreases from the first end to the second end of the nozzle. However, as discussed below, it is respectfully submitted that the Examiner has misinterpreted the disclosure set forth in the *Hayes* patent and therefore *Hayes* cannot be properly relied on as anticipating the invention as recited in claim 1.

As best seen in Figure 2a of the *Hayes* patent, the sprinkler (10) includes a trunnion (30) disposed in a gudgeon (40) and further including a through passage (35) that allows passage of a water stream. The outer surface of the trunnion (30) includes threads which engage matching threads on a nozzle (22), while the nozzle (22) frictionally engages a diffuser (26) on its far end. Within the through passage (35) and near the beginning of the nozzle (22) are vanes (32) disposed axially at various positions around the inside of the flow passage (35).

The Examiner's sole argument seems to be that elements (32) are a plurality of stepped, radial offsets formed along the internal wall such that an internal diameter of the nozzle decreases from the first end to the second end of the nozzle. However, elements (32) are in fact longitudinal vanes. For example, column 3 lines 60-65 states, "inserted within the open end of trunnion 30 is a vane 32 for removing the turbulence from the water stream flowing through passage 35 in trunnion 30 and thereby increasing the distance of throw for a given orientation of the trunnion and nozzle." This vane (32) is clearly illustrated in Figure 2a to be a thin protrusion from the inside of the passage (35), extending

uniformly in an axial direction. Additionally, the diameter of the passage (35) remains constant where the plurality of vanes (32) are present.

In view of this fact, *Hayes* cannot be properly relied upon as anticipating the invention of claim 1. At a minimum, *Hayes* fails to teach a plurality of stepped, radial offsets formed along an internal wall such that an internal diameter of said nozzle decreases from said first end to said second end of said nozzle. Instead, *Hayes* only teaches turbulence-reducing vanes (32) that are positioned longitudinally along the inner diameter of the through passage (35), maintaining a substantially constant inner diameter of the through passage (35). Although *Hayes* seems to show a region of the nozzle (22), that decreases the through passage (35) this is only a single, gradual decrease in the diameter of the through passage, not a step. In no respect does *Hayes* disclose a plurality of stepped, radial offsets formed along an internal wall such that an internal diameter of the nozzle decreases from a first end to a second end of the nozzle as claimed.

As to claims 2-6, these claims depend from claim 1 and thus for at least the above reasons are also novel and unobvious over the cited prior art. However, these claims further limit the claimed invention and thus are separately patentable over the cited prior art.

Turning to claim 8, the Examiner asserts the same argument as to claim 1, namely that *Hayes* discloses each and every element set forth in claim 8. Like claim 1, claim 8 includes a plurality of stepped, radial offsets formed along an internal wall such that an internal diameter of a nozzle decreases from a first end to a second end of the nozzle. Hence, for the same reasons set forth above in the discussion of claim 1, *Hayes* does not disclose at least this element and merely presents vanes (32) positioned axially along the sprinkler's through passage (35).

As to claims 9-12 and 15, these claims depend from claim 8 and thus for at least the above reasons are also novel and unobvious over the cited prior art.

However, these claims further limit the claimed invention and thus are separately patentable over the cited prior art.

II. REJECTIONS UNDER 35 U.S.C. SECTION 103

Claims 7, 13-14 and 16-20 are rejected under 35 U.S.C. Section 103(a) as being unpatentable by U.S. Patent No. 3,921,912 to *Hayes*. For at least the reasons set forth below, it is submitted that these prior art rejections should be withdrawn and the pending claims allowed.

Regarding claims 7 and 13-14, these claims variously depend from either independent claim 1 or independent claim 8. Hence the reason set forth above as to the allowability of these independent claims applies equally to claims 7 and 13-14. However, these dependant claims are separately patentable.

For example claims 7 and 13-14 require the stepped radial offsets to be arranged at the various angles to decrease (claims 7 and 14) or increase (claim 13) a boundary layer of fluid within the nozzle. However, as discussed above, the *Hayes* patent does not teach, disclose, or otherwise make obvious a plurality of stepped, radial offsets in the first place. Hence, it cannot possibly teach how such offsets could effect the boundary layer, let alone how to decrease (claims 7 and 14) or decrease (claim 13) the boundary layer. Therefore, it cannot be properly asserted that it is obvious from *Hayes* how to do so.

Regarding claim 16, this claim is an independent method claim. Among other ~~actions~~ recited, claim 16 requires increasing the boundary layer thickness of the fluid as it exits the sprinkler by urging the fluid through a stepped internal surface along the exit. As such, this claim is somewhat analogous to claims 7 and 14 insofar as they each require a stepped internal surface and each require a configuration to increase the boundary layer thickness. Hence, the same arguments as applied to claims 7 and 14 are equally applicable here, namely that *Hayes* fails to disclose a stepped internal surface in the first instance, let alone a configuration of such surfaces to increase the boundary layer thickness as claimed.

As to claims 17-20, these claims depend from claim 16 and thus for at least the reasons stated as to claim 16 are also novel and unobvious over the cited prior art. However, these claims further limit the claimed invention and thus are separately patentable over the cited prior art.

CONCLUSION


In view of the foregoing, it is submitted that pending claims 1-20 are now in condition for allowance. Hence an indication of allowability is hereby requested.

If for any reason direct communication with Applicants' attorney would serve to advance prosecution of this case to finality, the Examiner is cordially urged to call the undersigned attorney at the below listed telephone number.

The Commissioner is authorized to charge any fee which may be required in connection with this Amendment to deposit account No. 50-2809.

Respectfully submitted,

Dated: June 17, 2005



James W. Inskeep, Esq.
Registration No. 38,910

INSKEEP INTELLECTUAL PROPERTY GROUP, INC.
1225 W. 190th Street, Suite 205
Gardena, CA 90248
Telephone: (310) 217-6220
Facsimile: (310) 327-0282

Customer No. 37,374